

THREE NEW SPECIES OF THE SUBGENUS *HYGIA* (*MICROCOLPURA*) BREDDIN FROM SOUTHEASTERN ASIA, AND NEW TAXONOMIC REARRANGEMENTS (HEMIPTERA: COREIDAE: COREINAЕ: COLPURINI)¹

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ABSTRACT: Three new species of *Hygia* (*Microcolpura*) Breddin from Indonesia, Malaysia, and Philippine Republic are described, and a key to the 14 known species is given. Numerous species previously placed in the subgenus *Hygia* (*Microcolpura*) are transferred to the subgenus *Hygia* (*Pterocolpura*), and 12 new subgeneric combinations are made as follows: *H. (P.) angulicollis* (Breddin 1900) nov. comb., *H. (P.) annulipes* (Dallas 1852) nov. comb., *H. (P.) armillata* (Breddin 1900) nov. comb., *H. (P.) brevipennis* (Bergroth 1921) nov. comb., *H. (P.) denticollis* (Bergroth 1918) nov. comb., *H. (P.) kinabaluna* (Brailovsky and Barrera 2002) nov. comb., *H. (P.) montana* (Blöte 1936) nov. comb., *H. (P.) noctua* (Distant 1901) nov. comb., *H. (P.) nodulosa* (Distant 1899) nov. comb., *H. (P.) pajuanica* (Brailovsky and Barrera 2002) nov. comb., *H. (P.) tuberculicollis* (Breddin 1900) nov. comb., and *H. (P.) varipes* (Westwood 1842) nov. comb. The new name *Hygia* (*Pterocolpura*) *frontalis* is proposed for *Hygia* (*Pterocolpura*) *angulicollis* Blöte 1936, preoccupied by *Hygia* (*Microcolpura*) *angulicollis* Breddin 1900, here transferred to *Hygia* (*Pterocolpura*). Two species, *humilis* (Breddin 1906) and *inermis* (Walker 1871), previously included in *Hygia* (*Microcolpura*), are excluded and considered insertae sedis.

KEY WORDS: Insecta, Hemiptera, Coreidae, Colpurini, *Hygia* (*Microcolpura*) and *Hygia* (*Pterocolpura*), new species, southeastern Asia, Indonesia, Malaysia, and Philippine Republic

The genus *Hygia* Uhler (1861) includes ten subgenera (*Australocolpura* Brailovsky, *Caracolpura* Breddin, *Colpura* Bergroth, *Eucolpura* Breddin, *Hygia* Uhler, *Microcolpura* Breddin, *Pterocolpura* Blöte, *Sphinctocolpura* Breddin, *Stenocolpura* Breddin, and *Trichocolpura* Breddin), and approximately 87 species widely distributed in the Oriental Region throughout Japan, China, Taiwan, India, Burma, Korea, Cambodia, Malaysia, Indonesia, Philippines, New Guinea, and Australia (Brailovsky and Barrera 2002).

Our knowledge of relationships subgenera of the genus *Hygia* is still incomplete. Brailovsky and Barrera (1997) revised the subgenus *Eucolpura* of *Hygia* and discussed its relationship to the subgenus *Colpura*, and later Brailovsky and Barrera (2002) revised the subgenus *Microcolpura* of the genus *Hygia*, described five new species and placed the number of known at 26 species.

Current studies of the subgenus *Pterocolpura* allow us to recognize close affinities with *Microcolpura* based on evidence that we did not consider during the revision of the latter. Both subgenera share the following characters: genae without spines, postocular tubercle protuberant, buccula rounded, short, and with sharp spiny anterior projection, femora unarmed, and abdominal sternite VII of the female with plica and fissura.

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The only feature that separates them is the frontal angles of the pronotum which in *Microcolpura* are obtuse and rounded (Fig. 1), whereas in *Pterocolpura* they are produced forward as tiny, medium-sized, or remarkably large conical lobes, thickened, and reaching or not the postocular tubercle (Figs. 2-4).

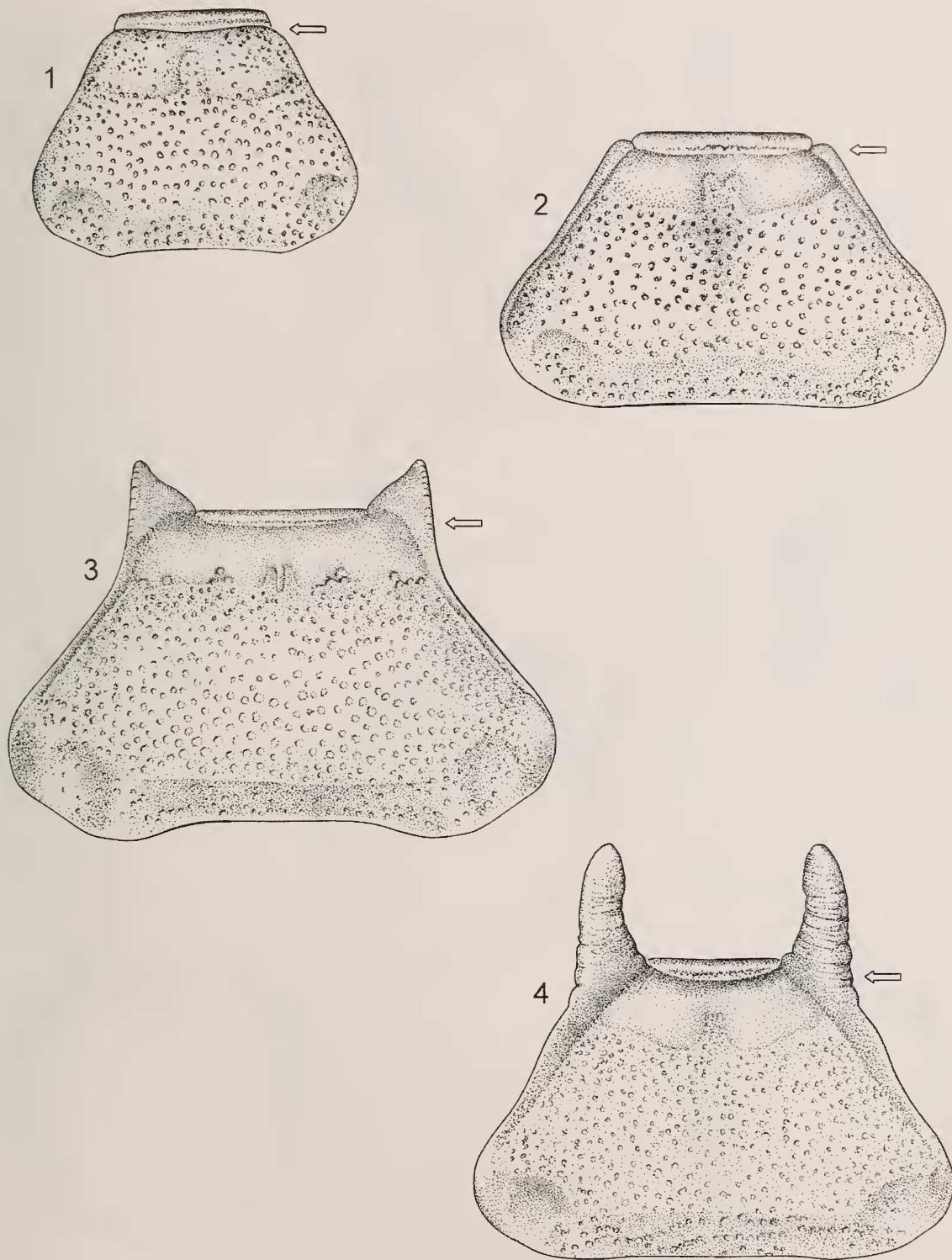
The subgenus *Pterocolpura* has included only 3 species: *H. (P.) frontalis* Brailovsky and Barrera (**nomen novum**) [before *H. (P.) angulicollis* Blöte (1936), *H. (P.) pentafurcata* Brailovsky (2002), and *H. (P.) sarawak* Brailovsky (2002)]. To this group, 12 new subgeneric combinations are added as follows: *H. (P.) angulicollis* (Breddin 1900) **nov. comb.**, *H. (P.) annulipes* (Dallas 1852) **nov. comb.**, *H. (P.) armillata* (Breddin 1900) **nov. comb.**, *H. (P.) brevipennis* (Berghroth 1921) **nov. comb.**, *H. (P.) denticollis* (Berghroth 1918) **nov. comb.**, *H. (P.) kinabaluna* (Brailovsky and Barrera 2002) **nov. comb.**, *H. (P.) montana* (Blöte 1936) **nov. comb.**, *H. (P.) noctua* (Distant 1901) **nov. comb.**, *H. (P.) nodulosa* (Distant 1899) **nov. comb.**, *H. (P.) pajuana* (Brailovsky and Barrera 2002) **nov. comb.**, *H. (P.) tuberculicollis* (Breddin 1900) **nov. comb.**, and *H. (P.) varipes* (Westwood 1842) **nov. comb.**. To clarify the taxa involved in the subgenus, *Pterocolpura* will be revised in a further contribution.

Another species previously included in *Microcolpura* and transferred to the subgenus *Hygia* was reconfirmed by Kerzhner and Brailovsky (2003) as *Hygia (Hygia) lativentris* (Motschulsky 1866).

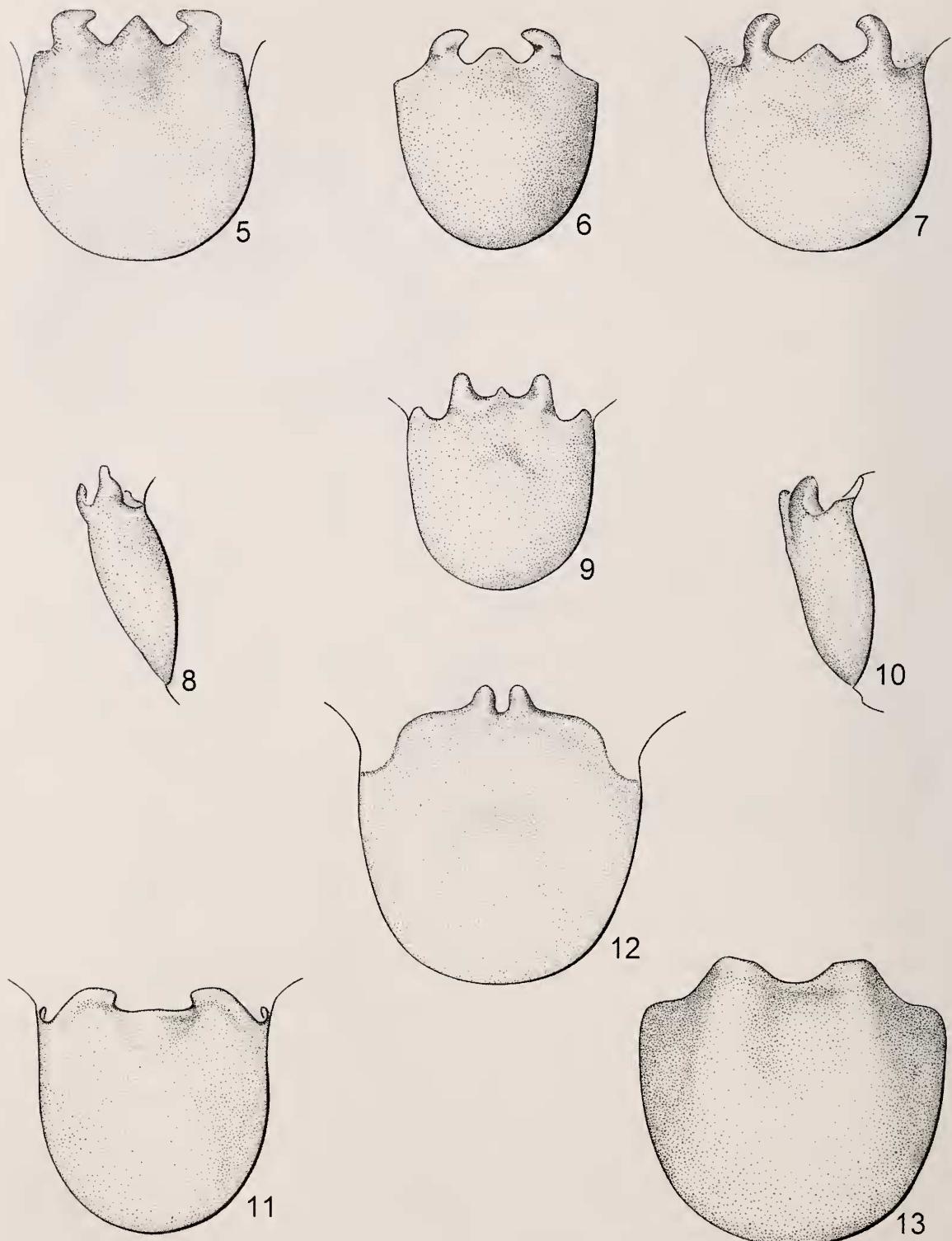
Two species, *humilis* (Breddin 1906) and *inermis* (Walker 1871), which were included in *Hygia (Microcolpura)*, are excluded and considered insertae sedis. A new subgenus or genus likely will be described to accommodate these species.

The subgenus *Microcolpura* now includes 14 species, among them three new to the science: *H. (M.) binaluana* new species, *H. (M.) dulita* Brailovsky and Barrera 2002, *H. (M.) flavitarsis* Blöte 1936, *H. (M.) hebeticollis* (Breddin 1905), *H. (M.) imbellis* (Breddin 1900), *H. (M.) incultus* new species, *H. (M.) inermicollis* (Breddin 1900), *H. (M.) labecula* (Distant 1901), *H. (M.) modesta* (Distant 1901), *H. (M.) pacalis* (Breddin 1906), *H. (M.) selangorana* new species, *H. (M.) siberuta* Brailovsky and Barrera 2002, *H. (M.) siporana* Brailovsky and Barrera 2002, and *H. (M.) speculigera* (Breddin 1906). These species are morphologically very similar and therefore sometimes difficult to distinguish, especially females. The most reliable distinguishing character is the shape of the posteroventral edge of the male genital capsule.

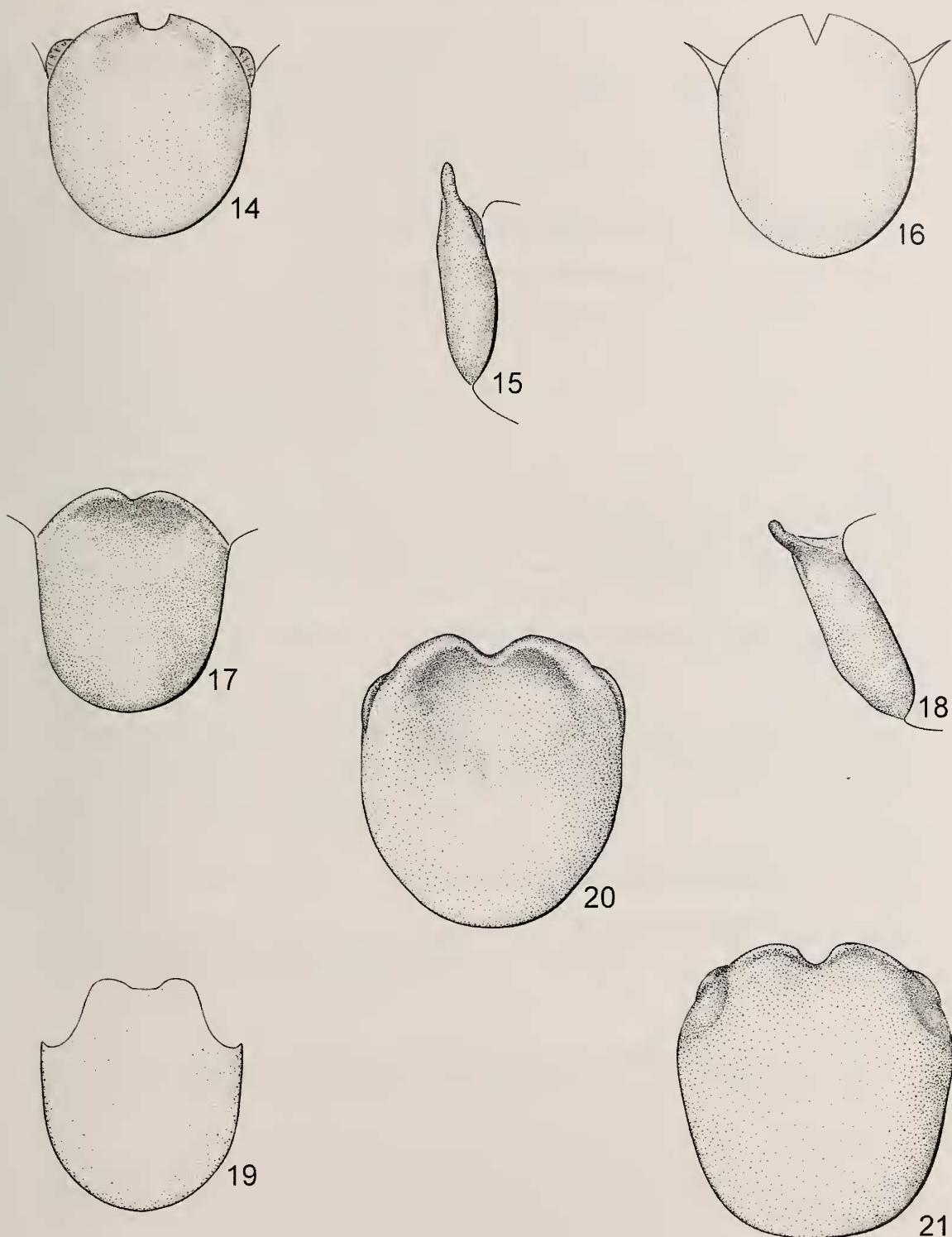
The following abbreviations are used for the institutions cited in this paper: BMNH (The Natural History Museum, London, England); BPBM (Bernice P. Bishop Museum, Honolulu, Hawaii); RNHL (Rijksmuseum van Natuurlijke Histoire, Leiden, Netherlands); UNAM (Instituto de Biología, Universidad Nacional Autónoma de México); ZMAS (Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia); and ZSMC (Zoologische Staatsammlung, München, Germany).



Figures 1-4. Pronotum. 1. *Hygia (Microcolpura) flavitarsis* Blöte. 2-3. *Hygia (Pterocolpura)* spp. 2. *H. (P.) montana* (Blöte). 3. *H. (P.) angulicollis* (Breddin). 4. *H. (P.) sarawak* Brailovsky.



Figures 5-13. *Hygia (Microcolpura)* spp., male genital capsule in caudal view (5-7, 9, 11-13) and lateral view (8, 10). 5. *H. (M.) siberuta* Brailovsky and Barrera. 6. *H. (M.) imbellis* (Breddin). 7. *H. (M.) siporana* Brailovsky and Barrera. 8. *H. (M.) imbellis* (Breddin). 9-10. *H. (M.) pacalis* (Breddin). 11. *H. (M.) labecula* (Distant). 12. *H. (M.) dulita* Brailovsky and Barrera. 13. *H. (M.) incultus* NEW SPECIES.



Figures 14-21. *Hygia (Microcolpura)* spp., male genital capsule in caudal view (14, 16-17, 19-21) and lateral view (15, 18). 14-15. *H. (M.) inermicollis* (Breddin). 16. *H. (M.) speculigera* (Breddin). 17-18. *H. (M.) hebeticollis* (Breddin). 19. *H. (M.) flavitarsis* Blöte. 20. *H. (M.) binaluana* NEW SPECIES. 21. *H. (M.) selangorana* NEW SPECIES.

KEY TO THE SPECIES OF *HYGIA (MICROCOLPURA)*

1. Hind tibiae black to reddish brown with two yellow rings.....
.....*Hygia (Microcolpura) hebeticollis* (Breddin)
 - 1a. Hind tibiae entirely black to reddish brown.....2
2. Hemelytral membrane dark to pale brown with central yellow discoidal spot3
 - 2a. Hemelytral membrane entire pale to dark brown or ambarine7
3. Posteroventral edge of male genital capsule pentalobulate or trilobulate (Figs. 6, 9, and 10)....4
 - 3a. Posteroventral edge of male genital capsule simple (Figs. 11, 16, 21).....5
4. Posteroventral edge of male genital capsule trilobulate (Figs. 6, 8).....
.....*Hygia (Microcolpura) imbellis* (Breddin)
 - 4a. Posteroventral edge of male genital capsule pentalobulate (Figs. 9-10)
5. Posteroventral edge of male genital capsule with small U-shaped mesial concavity, lateral angles shallowly incurved mesad (Fig. 21).....*Hygia (Microcolpura) selangorana* NEW SPECIES
 - 5a. Posteroventral edge of male genital capsule not with small U-shaped mesial concavity (Figs. 11, 16)
6. Posteroventral edge of male genital capsule with small V-shaped mesial acute concavity, lateral angles not incurred mesad (Fig. 16).....*Hygia (Microcolpura) speculigera* (Breddin)
 - 6a. Posteroventral edge of male genital capsule with deep elongate U-shaped concavity, lateral angles with short lobes (Fig. 11)
7. Endocorium without subapical yellow discoidal spot.....8
 - 7a. Endocorium with subapical yellow discoidal spot.....9
8. Connexivum and pleural abdominal sterna unicolor, entirely pale orange red; pronotal disk densely covered with long erect setae ...*Hygia (Microcolpura) siberuta* Brailovsky and Barrera
 - 8a. Connexivum and pleural margin of abdominal sterna bicolorous, reddish brown with posterior margin or posterior half yellow; pronotal disk glabrous or with a few scattered short hairs
9. Posteroventral edge of male genital capsule simple (Fig. 13-15, 19).....10
 - 9a. Posteroventral edge of male genital capsule bituberculate or trilobulate (Figs. 7, 12)
10. Posteroventral edge of male genital capsule with wide mesial concavity (Fig. 13)
-*Hygia (Microcolpura) incultus* NEW SPECIES
 - 10a. Posteroventral edge of male genital capsule not with wide mesial concavity (Figs. 14-15, 19)
11. Posteroventral edge of male genital capsule moderately sinuate, with shallow non-truncated mesial concavity (Fig. 19).....*Hygia (Microcolpura) flavitarsis* Blöte
 - 11a. Posteroventral edge of male genital capsule with small U-shaped mesial concavity, and lateral angles incurving mesad (Figs. 14-15).....*Hygia (Microcolpura) inermicollis* (Breddin)
12. Posteroventral edge of male genital capsule bituberculate (Fig. 12); hind femur black to reddish brown, with basal third yellow
-*Hygia (Microcolpura) dulita* Brailovsky and Barrera
 - 12a. Posteroventral edge of male genital capsule trilobulate (Fig. 7); hind femur entirely black to reddish brown
13. Posteroventral edge of male genital capsule with median triangular lobe, elongate and exposed, lateral lobes narrowed incurving mesad and longer than median lobe (Fig. 7).....
.....*Hygia (Microcolpura) saporana* Brailovsky and Barrera
 - 13a. Posteroventral edge of male genital capsule with median lobe short, and lateral lobes broad, incurving mesad, and longer than median lobe

***Hygia (Microcolpura) incultus*, NEW SPECIES**
(Fig. 13)

Description. Male (holotype). **Dorsal coloration.** Black with apex of scutellum, and posterior margin of connexivum dark chestnut orange; antennal segments I to III black, IV yellow orange with basal joint pale reddish brown; inner third of apical margin of endocorium with yellow discoidal spot; hemelytral membrane entirely dark ambarine with veins darker, and reaching posterior margin of last abdominal segment. **Ventral coloration.** Black with rostral segments I to IV, trochanter, basal joint of femora, and anterior and posterior lobe of metathoracic peritreme yellow to chestnut orange; tarsi shiny chestnut orange. **Structure.** Rostrum incomplete: frontal angles obtuse, rounded; femora unarmed. Genital capsule broadly ovoid; posteroventral edge convex with a widened mesial concavity (Fig. 13).

Female. Unknown.

Measurements. Head length: 1.30 mm; width across eyes: 1.44 mm; interocular space: 0.90 mm; intercellular space: 0.44 mm; preocular distance: 0.86 mm; antennal segments lengths: I, 1.38 mm; II, 1.64 mm; III, 1.22 mm; IV, 1.10 mm. Pronotal length: 1.78 mm; width across humeral angles: 2.86 mm. Scutellar length: 1.52 mm; width: 1.32 mm. Total body length: 8.95 mm.

Type material. Holotype: male, Indonesia, West Sumatra, Loeboek Sikaping, 450 m, 1923-27, L. Hundeshagen. Deposited in ZMAS.

Discussion. The shape of the posteroventral edge of male genital capsule resembles *Hygia (Microcopura) hebeticollis* (Breddin 1905). *Hygia (M.) incultus* is distinguishable by the completely black tibiae, the hemelytral membrane entirely dark ambarine, and the mesial concavity of the posteroventral edge of male genital capsule widened (Figs. 13, 17-18). In *H. (M.) hebeticollis* the tibiae are reddish brown with two yellow rings, and the hemelytral membrane is pale brown.

Etymology. From the Latin “*incultus*,” for uncultivated, referring to the relatively indistinctive nature of the species.

***Hygia (Microcolpura) selangorana*, NEW SPECIES**
(Fig. 21)

Description. Male (holotype). **Dorsal coloration.** Black to reddish brown with apex of scutellum, and posterior margin of connexivum dark chestnut orange; antennal segments I to III chestnut orange, IV yellow with basal joint chestnut orange; inner third of apical margin of endocorium with dirty yellow discoidal spot; hemelytral membrane dark brown with wide yellow discoidal spot, and reaching posterior margin of last abdominal segment; dorsal abdominal segments black with segment II and lateral margins of III dark orange. **Ventral coloration.** Black; rostral segments I to IV yellow, or yellow with orange reflec-

tions; trochanter, basal joint of hind femur, tibiae, tarsi, anterior and posterior lobe of metathoracic peritreme, and posterior margin of pleural abdominal sterna orange to dark chestnut orange. **Structure.** Rostrum reaching posterior margin of abdominal sternite V; frontal angles obtuse, rounded; femora unarmed. Genital capsule broadly ovoid; posteroventral edge with narrow U-shaped concavity, and lateral angles shallowly incurved (Fig. 21).

Female. Unknown.

Measurements. Head length: 1.36 mm; width across eyes: 1.60 mm; interocular space: 0.82 mm; intercellular space: 0.38 mm; preocular distance: 0.86 mm; antennal segments lengths: I, 1.52 mm; II, 2.12 mm; III, 1.34 mm; IV, 1.24 mm. Pronotal length: 2.00 mm; width across humeral angles: 3.00 mm. Scutellar length: 1.54 mm; width: 1.32 mm. Total body length: 9.35 mm.

Type material. **Holotype:** male, Malaysia, Selangor, F. M. S., Gombok Valley, 20-X-1921, H. M. Pendlebury. Deposited in BMNH. **Paratypes:** 1 male, Malaysia, Selangor, F. M. S., Ayer Farm, F. A. Limba and Old Baluku, 100'-600', 14-XI-1920, H. C. Abraham. Deposited in UNAM. 1 male, Malaysia, Malaya Peninsula, SE Pahang, Rompin Mining Co., Railway Track, 46 km, 3-III-1961, L. W. Quate. Deposited in BPBM.

Discussion. The endocorium with small discoidal yellow spot, and the shape of the posteroventral edge of male genital capsule (Figs. 14-15, 17-18, 21) resemble *Hygia (Microcolpura) hebeticollis* (Breddin 1905) and *H. (M.) inermicollis* Breddin 1900. The hemelytral membrane of those species is entirely pale brown, and in *H. (M.) selangorana* the membrane is dark brown with a wide central yellow spot.

In *H. (M.) imbellis* (Breddin), the hemelytral membrane is similar to that of *H. (M.) selangorana*, but the posteroventral edge is clearly trilobulate and not simple (Figs. 6, 8, 21).

Etymology. Named after the type locality.

Hygia (Microcolpura) binaluana, NEW SPECIES (Fig. 20)

Description. Male (holotype). Dorsal coloration. Head and anterior lobe of pronotal disk black; posterior lobe of pronotal disk, scutellum, clavus, and corium dark chestnut orange; antennal segment I reddish brown, II and III chestnut orange, and IV yellow with basal joint chestnut orange; apex of scutellum yellow; endocorium lacking a yellow discoidal spot; hemelytral membrane entirely brown; connexivum reddish brown with posterior margin yellow; abdominal segments reddish brown. **Ventral coloration.** Reddish brown with rostral segments I to IV, anterior and posterior lobe of metathoracic peritreme, trochanters, basal joint of fore and middle femora, anterior third of hind femur, and posterior lateral margin of abdominal sterna yellow; tibiae orange yellow with basal and apical joint darker; tarsi yellow with pale chestnut orange reflections. **Structure.**

Rostrum reaching posterior margin of abdominal sternite IV or anterior third of V; frontal angles obtuse, rounded; femora unarmed. Genital capsule broadly ovoid; posteroventral edge with narrow elongate median longitudinal impression and undercurved area along the posterior one-third of lateral angles (Fig. 20).

Female. Coloration. Similar to male (Holotype). Abdominal segments VIII and IX, connexival segments VIII and IX dark reddish; genital plates reddish brown with chestnut orange reflections. **Structure.** Genitalia. Abdominal sternite VII with plica and fissura; plica triangular, acute, reaching the middle third of the sternite; gonocoxae I enlarged dorsoventrally, convex, in caudal view closed; paratergite VIII triangular, small, with spiracle visible; paratergite IX squarish, larger than paratergite VIII, with inner third clearly touching.

Measurements. Male given first, followed in parentheses by those for female. Head length: 1.56 mm (1.66 mm); width across eyes: 1.70 mm (1.80 mm); interocular space: 0.88 mm (0.88 mm); interocellar space: 0.42 mm (0.44 mm); preocular distance: 0.94 mm (0.96 mm); antennal segments lengths: I, 1.74 mm (1.70 mm); II, 2.44 mm (2.56 mm); III, 1.60 mm (1.62 mm); IV, 1.34 mm (1.32 mm). Pronotal length: 2.16 mm (2.36 mm); width across humeral angles: 3.24 mm (3.58 mm). Scutellar length: 1.68 mm (1.80 mm); width: 1.64 mm (1.82 mm). Total body length: 10.03 mm (10.75 mm).

Type material. Holotype: male, Philippine Republic, N Palawan, Binaluan, XI-XII-1913, G. Boettcher. Deposited in ZSMC. Paratypes: 3 males, 3 females, Philippine Republic, N Palawan, Binaluan, XI-XII-1913, G. Boettcher. Deposited in BMNH, UNAM and ZSMC:

Discussion. The hemelytral membrane entirely brown, the obtuse frontal angles, and the shape of the male genital capsule relate this species to *H. (M.) hebeticollis* (Breddin 1905) (Figs. 17-18, 20). In *H. (M.) binaluana* the endocorium lacks a yellow discoidal spot, the pronotal disk is covered with short scattered hairs, and the tibiae are orange yellow with basal and apical joint darker. In *H. (M.) hebeticollis* the endocorium has a small yellow discoidal spot, the pronotal disk is densely covered by long and erect hairs, and the tibiae are reddish brown with two yellow rings.

Etymology. Named after Binaluan in the Philippine Republic.

ADDITIONAL NOMENCLATURAL REMARKS

Hygia (Pterocolpura) frontalis Brailovsky and Barrera, **nomen novum**

Hygia (Pterocolpura) angulicollis Blöte 1936. Zool. Meded. 19: 42-43. Preoccupied.

The male holotype of *H. (P.) angulicollis* Blöte (1936) housed in RNHL was examined. We determinated that the specific name *H. (P.) angulicollis* is a junior homonym of *Hygia (Microcolpura) angulicollis* (Breddin 1900), since the transfer of this latter taxon to the subgenus *Pterocolpura*. In the absence of a junior synonym for *H. (P.) angulicollis* Blöte 1936, not Breddin 1900, we suggest the following replacement name: *Hygia (Pterocolpura) frontalis* Brailovsky and Barrera, **nomen novum**.

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LITERATURE CITED

Bergroth, E. 1918. Studies in Philippine Heteroptera, I. The Philippine Journal of Science 13 (2-3): 43-126.

Bergroth, E. 1921. Some Hemiptera Heteroptera from N. W. Borneo. Journal of the Straits Branch of the R. Asiatic Society, Singapore, 83: 76-87.

Blöte, H. C. 1936. Catalogue of the Coreidae in the Rijksmuseum van Natuurlijke Histoire, Part III. Coreinae, Second part. Zoologische Mededeelingen 19: 23-66.

Brailovsky, H. and E. Barrera. 1997. Redescription of the subgenus *Hygia (Eucolpura)* Breddin (Hemiptera: Coreidae: Colpurini), with the description of two new species, and a key to the known species. Proceedings of the Entomological Society of Washington 99: 257-266.

Brailovsky, H. and E. Barrera. 2002. Redescription of the subgenus *Microcolpura* Breddin, 1900 of the genus *Hygia* Uhler, 1861 (Hemiptera: Heteroptera: Coreidae: Colpurini), with description of five new species. Polish Journal of Entomology 71: 211-223.

Breddin, G. 1900. Materiae ad cognitionem subfamilie Pachycephalini (Lybantini Olim). Ex Hemipteris-Heteropteris, Fam. Coreidae. Revue d' Entomologie, Caen 19: 194-217.

Breddin, G. 1905. Versuch einer Rhynchotenfauna der Malayischen Insel Banguey. Mitteilungen Naturhistorischen Museum Hamburg 22: 203-226.

Breddin, G. 1906. Neue Beiträge zur Kenntnis von *Colpura* Bergr., und verwandter Rhynchoten. Annales de la Société Entomologique Belgique 50: 47-58.

Dallas, W. S. 1852. List of the specimens of Hemipterous insects in the collection of the British Museum. Part II. Taylor and Francis Inc. London, England. pp. 369-392.

Distant, W. L. 1901. Rhynchotal notes.-VIII. Heteroptera: Fam. Coreidae. Annals and Magazine of Natural History. Series 7, Volume VII: 6-22.

Kerzhner, I. M. and H. Brailovsky. 2003. On *Hygia opaca* (Uhler), *H. lativentris* (Motschulsky) and *H. obscura* (Dallas) (Heteroptera: Coreidae). Zoosystematica Rossica 12 (1):99-100.

Motschulsky, V. 1866. Catalogue des insects recus du Japon. Bulletin de la Societe Imperial Naturelle de Moscou 39(1):163-200.

Uhler, P. R. 1861. Rectification of the paper upon the Hemiptera of the North Pacific expedition. Proceedings of the Academy of Natural Science of Philadelphia 1861: 286-287.

Walker, F. 1871. Catalogue of the specimens of Hemiptera Heteroptera in the collection of the British Museum. Part IV, London, England. 211 pp.

Westwood, J. O. 1842. Catalogue of Hemiptera in the collection of the Rev. F. W. Hope, M. A., with short Latin descriptions of the new species. Part II. London, England. Printed by J. C. Bridgewater, 31, South Molton Street, Oxford Street. pp. 1-26.